

KNOWLEDGE MANAGEMENT AND ORGANISATIONAL CULTURE

Ivor Perry M.A., B.Phil., M.B.A.

Sarah Tangai B.Sc.

De Montfort University, Leicester, UK

Abstract. *This paper explores the relationship between organisational knowledge, organisational culture, and Process Based Systems (PBS), in the U.K. National Health Service (NHS). Links between PBS and organisational culture have been observed before (Perry, 2003); the contribution made by PBS to organisational knowledge has also been suggested (Perry, 2004). However, links between organisational knowledge and organisational culture in the NHS have not been widely studied. A qualitative study of these links across clinical functions has been used in conjunction with a literature review to consider in particular the use of tacit knowledge and the role that might be played by PBS in mediating and sharing this 'embedded' or experiential form of knowledge. While there may be some opportunity for 'externalisation' (Nonaka, 1994) – the conversion of tacit to explicit knowledge, this paper argues that PBS may also contribute to 'socialisation' – the direct generation of tacit knowledge by tacit knowledge.*

Keywords: Process Based Systems; knowledge management; organisational culture.

Introduction

Knowledge has long been understood as a key element in establishing competitive advantage (Nonaka, 1994; Davenport and Prusak, 1997). Organisations are built not only on a foundation of exchanging information, but on creating, sharing, integrating and applying knowledge (Kogut and Zander, 1996; Spender, 1996; Teece, 1980). Adopting Kakabadse et al's (Kakabadse, Kakabadse and Kouzmin, 2003) concept of a continuum of data-information-knowledge-wisdom, the significance becomes apparent of using tacit knowledge in the creation of wisdom. Substantially, they identify a deepening complexity, and usefulness, of knowledge as more and more cognitive and interpretive processes are deployed. At the far end of the continuum, wisdom, therefore, becomes 'a mode of symbolic processing by a highly developed will.' This may appear to be no more than common sense, but they additionally demonstrate how intention and personality, including life experience, are essential to making the most use of knowledge. It is this aspect of knowledge management that forms a key issue to be dealt with in this paper. On the other hand, the handling of organisational knowledge in practice, in the NHS, is significantly mediated by the culture. This is because both the formal 'turfdoms' (oncology, geriatrics, etc) and the informal power structures (the influence of consultants) are culturally embedded, even while practitioners are undergoing training (Skyrme, 2002; Van Beveren, 2003).

The culture of an organisation influences the way in which practitioners learn and share knowledge (Schein, 1999). Specifically, the study conducted for this paper

shows how different types of culture affect knowledge sharing and creation amongst healthcare practitioners. The findings are in line with previous research in the NHS (Brooks, 2003; Brown, 1998) both the type of culture - for example, power-based cultures (Handy, 1995) dominated by consultants, or the nature of the culture – the ‘emotional climate’ (Brown and Brooks, 2002) affect the ability of staff to make decisions, and the nature of the decisions that they do make.

The third strand – the use of PBS – indicates how information systems may be used to harness the ‘collective knowledge’ (Spender, 1996) of the organisation. It has already been suggested that PBS play a role in acquiring and creating organisational knowledge (Perry, 2004); the deliberate use of these systems may provide a way forward in enabling practitioners to share and create knowledge in the manner that they prefer – i.e. a manner rooted in their tacit knowledge.

Data, Information and Knowledge

Following Kakabadse’s taxonomy (Kakabadse, Kakabadse and Kouzmin, 2003) knowledge can be considered as part of a continuum in which it is preceded by data and information. Data is a set of discrete, objective facts about events. Data describes only a part of what may have happened. It provides no judgement or interpretation and no sustainable basis of action. But it is important to organisations because it is the essential raw material for the creation of information (Davenport and Prusak, 1997).

Information includes data but it also includes all the information a person comes in contact with as a member of a social organization in a given physical environment. Information like data is carried through symbols, which may have complex structures and rules. Information therefore comes in a variety of forms such as writings, statements, statistics, diagrams or charts. Information becomes individual knowledge when it is accepted and retained by an individual as being a proper understanding of what is true (Lehrer, 1990) and a valid interpretation of the reality.

Davenport and Prusak (1997) define knowledge as “a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms.” We therefore have a concept of knowledge that is information or data that is organised and can be used usefully to achieve a result. Lang (2001) also suggests that “Meaningful knowledge cannot be simply retrieved from some database but must be actively reconstituted in the moment, in the context of which the community is, and what the particular needs are at that particular moment.” Again, the sense of intention, that knowledge result from some purposeful act of will, seems to provide a defining point of emergence from the (historic) quality of information.

Managing Knowledge in Healthcare

While Polanyi (1958) was the first to identify the importance of tacit knowledge, as opposed to explicit knowledge, Nonaka further developed the concept, and described how tacit knowledge could be made explicit through the process of externalisation (Nonaka and Kono, 1998). In a non-healthcare setting, Barclay and Murray (2000) make two significant points about Knowledge Management as a business activity:

- Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organisation.
- Making a direct connection between an organization's intellectual assets — both explicit [recorded - know what] and tacit [personal - know-how] — and positive business results.

While the NHS is a non-profit organisation, it nevertheless has strategies and organisational goals. Cheshire & Mersey Strategic Health Authority (2003) suggest that within its strategic health authority their understanding is that Knowledge Management is *“primarily concerned with continual service improvement and the delivery of benefits to the community. This concern has two key drivers. Firstly the need to share information, good practice, lessons learnt and know-how. Secondly to facilitate access to multiple internal and external sources of electronic, paper-based and people based resources.”* There is a clear recognition that knowledge exists in both explicit and tacit forms, and an implication that knowledge should pass between them. A key question then, is to what extent does knowledge management (the use of those ‘intellectual assets’) really contribute to organisational excellence in the NHS? Certainly, writers within the NHS have underlined the importance of managing knowledge: that staff should share knowledge, skills and experiences, synthesize information, create new knowledge and enrich the knowledge base of the organisation. They argue that Knowledge Management is dynamic: information, ideas and experiences are constantly developed and responsive to both internal and external factors. It is a vehicle for organisational development, recruitment and retention (Plaice and Pitch, 2003). On the other hand, there is considerable evidence that knowledge management within the NHS is also confused with information management.

In 2001, Dexter et al observed that the field of clinical informatics was, *‘at best, still in its late adolescence’*. Support tools for decision making had to draw together a broad array of clinical information, from many different information subsystems. They needed to incorporate patients' demographic characteristics, problem lists, prior discharge diagnosis, vital signs, active inpatient orders, prior pharmacy records, radiology results, and the patients' own reports of what vaccines they had received. Other obvious sources of data included the clinical, microbiology, and surgical-

pathology laboratories. To some extent the National Programme for I.T. (NPfIT) – the NHS' major systems replacement programme – is achieving that, partly through the establishment of the National electronic Library for Health (NeLH). This however is another repository, requiring the user to access it. From the evidence to date, it appears that a major shift in organisational culture would be needed in order to make the use of such a library a daily event, still less a part of a clinician's working day (NHS, 2005).

The establishment of a knowledge management strategy within the NHS may be considered a step forward for local and national health care practice. According to Oxbrow and Abell (1999), "Knowledge Management is a new focus on information and knowledge: It is about creating an environment in which information and knowledge are valued and an environment where information and knowledge is shared managed and used." An organisation such as the NHS has many sub-organisations; these in turn have their own different systems for carrying and delivering protocols, procedures and policies, which are governed by the government standards and guidelines. Clearly, knowledge sharing in the NHS is intended to improve the quality of information, data, working life, team working and patient care. The National Library for Health - Specialist Library for Knowledge Management was developed with an emphasis on providing practical and efficient support for the implementation of knowledge management in the NHS. Moving beyond information management, Plaice and Pitch (2003) advocated that staff should share knowledge, skills and experiences, synthesize information, create new knowledge and enrich the knowledge base of the organisation. They argued that knowledge management is dynamic: information, ideas and experiences are constantly developed and responsive to both internal and external factors. It should be a vehicle for organisational development, recruitment and retention and facilitate evidence-based medicine, which has become the touchstone of good practice in the early years of the 21st century. They went on to suggest the following practical drivers of knowledge management in the NHS.

Patient-centred health care:

- Health care consumers must be able to access knowledge and information to make informed decisions.
- The introduction of the Patient Advocacy and Liaison Service (PALS).

Evidence-based health care:

- The central tenet of the NHS as a means to ensure efficiency and cost effectiveness. Research shows that making this information, in the form of guidelines; available as part of the computer based electronic patient record, has a significant impact on clinical care (Stefanell, 2001).

Workforce development:

- The aim for a valued workforce with education and research opportunities within a flexible learning environment (Health, 2000).
- The growth of Workforce Development Confederations (WDCs) which have as a key agenda the requirement to 'ensure that organisations make best use of staff skills and resources'.

Implementation of information technology:

- Development of new technological solutions and the development of the electronic health record.
- Constantly evolving health technology where new information needs to be synthesized quickly.

These bodies are all part of the National Knowledge Service (NKS). The main aim of these bodies was to provide information and knowledge in the NHS and to provide evidence-based health knowledge. This integrates the nursing professional and patients to build knowledge based organisations that are efficient and shares knowledge to improve productivity and patient care. Knowledge Management within the NHS was developed as result of the following policies:

- NHS UK.
- NHS Direct Online.
- The National electronic Library for Health (NeLH).
- The National electronic Library for Social Care (NeLSC).
- NHS Modernisation Agency's Connections database.

The Department of Health suggests that the National Knowledge Service (NKS) in the NHS will meet the needs of professionals, patients and the public for up-to-date, cross-referenced, evidence-based information by fully integrating the development of NHS knowledge systems in the following ways:

- The analysis of knowledge needs of providers and consumers of health services
- The creation of high quality knowledge resources either funded by the Department or procured externally to specified criteria
- The delivery of those knowledge resources via traditional and new technology systems to agreed standards
- The development of individual and organisational knowledge skills to use the resources effectively

Yet the emphasis on 'knowledge' resources – mostly in fact repositories – is still a heavy one. It appears that much of the NHS discussion of knowledge in fact relates to information. The problem of how staff may be encouraged to create and share knowledge - how the various acts of intention may be formed and executed – still remains. Indeed, there are indications from previous research that knowledge does not pass easily between departments, or around the organisation. Additionally it became apparent that 'islands' of information were common in NHS organisations when managers and staff were pleasantly surprised at the change in attitude of departments after installing Electronic Patient Records (EPR) systems.

Organisational culture in the NHS

Organisational culture itself – described by Sathe as 'the set of important assumptions and beliefs (often unstated) which members of an organisation share in common' (Sathe, 1985)– is widely regarded as a vital element in developing

organisational processes and in making sense of internal knowledge creation and transfer. Schneider contends that culture refers to: (a) the values that lie beneath what the organisation rewards, supports and expects; (b) the norms that surround and/or underpin the policies, practices and procedures of organisations (c) the meaning incumbents share about what the norms and values of the organisation are (Schneider, 1988). Further, Schein (1999) not only reported that culture is shared values, beliefs and practices of the people in the organisation: he went on to say that culture is embedded in the way people act, what they expect of each other and how they make sense of each other's actions. This language permits a clear inference that culture also informs the tacit knowledge in organisations; in referring to the way people act, and how they make sense of each other's actions, Schein is talking in terms very similar to Nonaka and Takeuchi's (1995) views on tacit-to-tacit knowledge creation, or 'socialisation'.

Culture in the NHS has been described as a force for stability and for resisting change. The culture has blocked, resisted or adapted imposed technology change in the past when people did not fully understand the benefits for them, or when underlying fears about loss of status or control were never addressed (Wilson and Greaves, 2002). On the other hand, official departments within the NHS itself promote a view of a very open culture - that both the individuals and the organisations are able to acknowledge mistakes, learn from them, and take action to put things right (NHS, 2005). This may reflect aspirations rather than research, but it suggests that the NHS is aware of the importance of organisational culture and of the need to align it with organisational goals.

Brown and Brooks have described 'organisational climate' as a vital part of nursing practice and knowledge transfer. It is inextricably linked, but a separate phenomenon from, organizational culture. Organisational climate is the 'atmosphere' that employees feel in their organisations. It is created by practices, procedures and rewards, and may differ markedly from one department to another. Organisational climate is also fundamentally associated with shared emotion or feelings, and this dimension has been shown to be both a social influence on the behaviour of individual staff members and on their collective actions. As a result, Brooks and Brown identify 'emotional climate' as an important social construct in the interaction between staff and the communication they exchange. It is important to note that the authors were not specifically reporting on the handling of organisational knowledge, but they do show how individual and group self-identification both stem largely from stories and from shared experience. The stories are important, not just because of their facts, but because of the source (i.e. trusted or not), the emotion (negative or positive) and the force with which they are told.

At this point, it is appropriate to begin looking at the use of Information Systems (IS) in the NHS. In particular, it is important to consider in what way IS are able to align, or at least to co-exist with the culture. The NHS has, nationally, been the subject of more than twenty major IS initiatives in the last twenty-four years. Further, some of these initiatives have either been discredited by, and/or have provoked strong resistance from clinicians.

Process Based Systems (PBS)

PBS have been described as systems that enact business processes. Some are 'push' systems - highly prescriptive applications, like some of the insurance claims applications in large financial institutions, where agents have little choice in the order and number of steps they must follow. They may be 'ad hoc' systems, like some groupware applications – organising meetings, processing expense claims and so on. They may be what has been described as 'proto-PBS' (Perry, 2004) systems like Electronic Patient Records, that do not automatically move from one stage to another, but indicate when a new stage may be necessary (e.g. viewing the results of a haematology report).

Within the NHS, many EPR records themselves constitute the content of a number of organisational processes, particularly in the area of patient care. Systems that address processes, rather than transactions, have been an area of research focus for some time (Doherty and Perry, 1999). It has been proposed that these 'proto-PBS' can gather organisational knowledge as they enact the process. While this is happening, new organisational knowledge is created and transferred, because the system brings existing and new data together and enables clinical staff to gain new insights into the information now presented. Again, the difference between these systems and conventional databases or content management systems has been that there is an underlying, dynamic process that the system promotes. Further, there is evidence to suggest that this type of system, by (literally) crossing departmental boundaries and 'turfdoms' will have a positive effect on organisational culture and provide the basis for better knowledge sharing (Perry, 2004).

Methodology

The primary research followed an interpretive approach - Forbes et al (1999) suggest that it is concerned with establishing and searching for a 'warranted assertibility': in other words, valid evidence and proof that there is a phenomenon that exists (Forbes, 1999). Knowledge management and organisational culture are domains heavily dependent upon knowledge workers and their experiences. Thus (a) the relationship between knowledge management and organisational culture, (b) how knowledge management affects organisational culture, and (c) how information, data and knowledge are shared within the NHS, are all interrelated phenomena. Consequently, a phenomenological approach guided the analysis of the data.

The chosen method of data collection was semi-structured interviews, in order to maximise the use of time with busy professionals, but also to allow them, in a comfortable and supportive atmosphere, to describe realities as they understood them (Kvale, 1996). Respondents (N = 6) were chosen to provide a 'spread' of seniority and function, as follows: Anaesthetist, Medical Manager, Medical Doctor, Specialist Nurse (Haematology), Auxiliary Nurse (Surgical Ward).

In order to provide a ‘triangulation’ on the phenomena, the interview results, literature review and observation were combined in analysis (Hildebrand, 2004). As the exploratory nature of the research did not permit extended time to revisit conversations more than once, a modified form of discourse analysis was used. This enabled the researchers to gain multiple and deeper insights into the emotional cognition of the ‘actors’ (Mangham 1998). On the other hand, some techniques of discourse theory proved very useful; to allow an interviewee, for example, to feel relaxed that when he was describing ‘his world’, his perception was as useful as the ‘worlds’ being described by others. Firstly, discourse theory highlights the ‘role of the interviewee as storyteller, but also of the researcher, as interpreter. Each position is relevant to knowledge transfer and to knowledge creation, as they acknowledge the role of explicit knowledge as product of tacit knowledge (Davies, 2001).

Results

While the full study asked a wide range of questions relating to Knowledge Management, this paper focuses on those categories that relate closely to the handling and creation of knowledge, and importantly to the underlying base of tacit knowledge that the literature, at least (Polanyi, 1958) suggests underpins our explicit knowledge domain. As a basis, therefore, the researchers considered sources of information, and their nature. They then analysed the responses concerned with the transfer of knowledge, especially sensitive knowledge. Finally, they considered the respondents’ (sometimes emotional) response to IS in the context of these issues.

Sources of information

When the healthcare workers were asked about the nature and source of information they commonly used, explicit knowledge featured highly - Case notes, medication, operations notes, admission details, drug charts, blood results, admission details, drug charts – these were all referenced several times. Even informal explicit sources like information from patients, relatives and social workers were mentioned. This was expected, as by its nature, tacit knowledge is rarely accessed, except through a conscious reflective process.

Knowledge transfer

On the other hand, the way in which knowledge was transferred gave more clues to the tacit knowledge at work. Talking and sharing ideas with other staff members, Electronic Patient Records (ERP), sharing information with clients and patients all figured as important ways of communicating and creating knowledge. Significantly, perhaps, all these are either interactive (with other people) or process

oriented (in the case of ERP). With the exception of one reference to trawling the internet, all respondents emphasised these two means of knowledge transfer.

Transferring sensitive information

Generally, respondents did not even consider using information systems to transfer sensitive information; typical responses were *'It is hard to tell the nurse that the patient they have been caring for is dying. I feel that the nurses spend most of their working lives with the patient, and formed a good relationship with them' (Medical Doctor)*. Another typical comment was *'Sharing such emotional information is very difficult. I would rather disclose information that is relevant and leave the rest to the doctors.'* (Anaesthetist). Communicating sensitive information between members of staff is based on the mutual trust amongst staff members, empathy and willingness to help and thus enables knowledge sharing creation. This appears to touch directly on tacit knowledge and the 'emotional climate' in the department.

The interaction with IS

In terms of their relationship with Information Systems, however, respondents were quite unenthusiastic. Comments such as *'Why do I need to waste my time on the computer looking for information when I can easily ask my colleagues'?*, and *'I have been working here for a more than 20 years. I have never used a computer and I am used to writing my case notes by hand. I'm not willing to change the way I have always worked'* were repeated with considerable feeling.

Conclusions

That there is a relationship between organisational culture and knowledge management within the NHS, has been noted, and to some extent studied for some time. The research by Grainger et al into the development of clinical governance in 2002 saw the improvement of the culture and knowledge management as two of five key dimensions in good clinical governance (the others being structure, process, and outcome). Brown and Brooks' study of the emotional climate in night nursing also points up the relationship between culture and knowledge, albeit more obliquely.

If tacit activities (Sathe's 'unstated' attitudes and behaviours) underpin organisational culture, and tacit knowledge underpins and informs explicit knowledge, how may these strands be drawn together and made to work harmoniously? Nonaka's answer was largely to use person-to-person knowledge exchanges in building his theories of 'redundancy of information' and 'redundancy of process'. However, in addition to these methods, the NHS has its own extensive information systems, which surely should be used to develop both organisational knowledge and culture.

On the other hand, this piece of research indicates that staff are unlikely to rely on conventional knowledge repositories, preferring word-of-mouth knowledge exchange, or process-embedded exchange via case notes or ward rounds. When emotional and cultural issues come to the fore, the emphasis on person-to-person knowledge transfer becomes even more clear-cut.

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Equally, the NPfIT has thrown up another avenue towards the integration of both knowledge management and culture, in the form of a national series of EPR systems. To the extent that many of these are proto-PBS systems, they are extremely well placed to embed themselves in the culture. This is because they form the de facto process by which both medical and administrative staff do their work. Further, in so far as they are accepted by staff, they tend to become part of, and therefore subtly alter, the organisational culture. The basis for this possible change in organisational culture, as the result of process-based systems, had already been observed by Doherty and Perry in 1998.

While the use of Electronic Patient Records is unlikely to be a 'magic bullet' that will integrate, in a positive way, NHS culture and knowledge management, it represents a practical approach to the problem. If IS is still viewed with some suspicion, or less used spontaneously by healthcare professional who are busy doing their work, then it makes good sense to embed the knowledge into the work process, and to fit the work process to the culture, or indeed positively use the new work process to develop positive aspects of the culture. This again is in line with Perry and Doherty's 1999 findings, where most companies in their survey had found that culture was positively changed by the introduction of workflow (process-based) systems.

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